

Notice of Allowability

Application No.

10/645,901

Examiner

Tianjie Chen

Applicant(s)

TSUCHIYA ET AL.

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on 03/30/2006.
2. ☒ The allowed claim(s) is/are 7,8,10-16,18-23 and 25.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/425,967.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

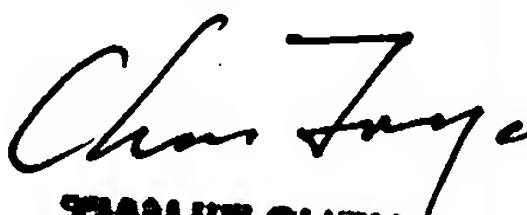
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20060602.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


TIANJIE CHEN
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gang Luo on 06/02/2006.

The application has been amended as follows:

- In claim 10, line 2 "cobalt" has been changed to --one element--.
- In claim 11, line 3 "nickel" has been changed to --one element--.
- In claim 11, line 6 "cobalt" has been changed to --one element--.
- In claim 12, line 2 "kind of" has been deleted.
- In claim 13, line 2 "kind of" has been deleted.
- In claim 16, line 2 "cobalt" has been changed to --one element--.
- In claim 18, line 2 "cobalt" has been changed to --one element--.
- In claim 19, line 3 "nickel" has been changed to --one element--.
- In claim 19, line 6 "cobalt" has been changed to --one element--.
- In claim 20, line 2 "kind of" has been deleted.
- In claim 21, line 2 "kind of" has been deleted.
- In claim 25, line 9 "a ferromagnetic layer" has been changed to --a ferromagnetic interlayer--.

Reasons for Allowance

2. Since the amended independent claims 7, 15, 23, and 25 are found allowable, the withdrawn claims 8, 10-14, 16, 18-22 are rejoined and also found allowable. Finally claims 7, 8, 10-16, 18-23, and 25 are allowed.

The following is an examiner's statement of reasons for allowance:

With regard to independent claims 7, 15, 23, and 25; as the closest reference on record, Mao et al (US 6,134,090) shows a thin film magnetic head including: a nonmagnetic layer; a soft magnetic layer formed on one surface of the nonmagnetic layer; a ferromagnetic layer formed on the other surfaces of the nonmagnetic layer; an antiferromagnetic layer formed on the ferromagnetic layer; and a ferromagnetic interlayer formed in the ferromagnetic layer; the ferromagnetic interlayer having magnetism, and the electrical resistance of the ferromagnetic interlayer is higher than the electrical resistance of the ferromagnetic layer; but fails to show that the ferromagnetic interlayer contains at least one of oxide, nitride, or nitride oxide.

Applicant asserts: by using the interlayer, the rate of resistance change can be increased, and an exchange coupling magnetic field between the antiferromagnetic layer and the ferromagnetic layer can be sufficiently increased (Specification, p. 7).

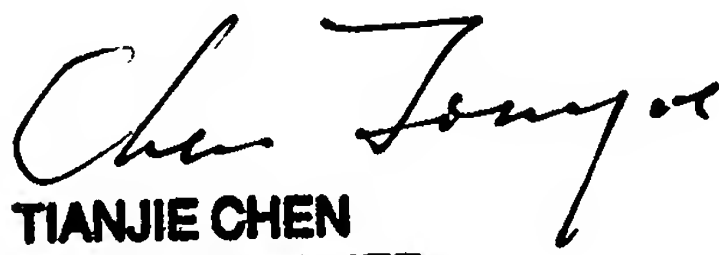
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


TIANJIE CHEN
PRIMARY EXAMINER